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ABSTRACT

This booklet presents projections of supply and demand for elementary and secondary public and nonpublic school teachers for the United States for the years 1975-76 through 1980-81. Three alternative sets of projections are presented, based on assumptions of high, intermediate, and low rates of teacher turnover. Chapter 1 describes the objectives, scope, and approach of the study and briefly summarizes its findings; chapter 2 discusses the projection model that was used; and chapter 3 presents the study's results and conclusions. (Author/JG)

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COMMISSIONER'S REPORT
ON THE EDUCATION PROFESSIONS
1974-75

Projections of Teacher Supply and Demand to 1980-81

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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Office of Education
William F. Pierce, *Acting Commissioner*

FOREWORD

Section 503(b) of the Education Professions Development Act (20 U.S.C. 1901b), enacted June 29, 1967, P.L. 90-35, requires that "the Commissioner shall prepare and publish annually a report on the education professions, in which he shall present in detail his views on the state of the education professions and the trends which he discerns with respect to the future complexion of programs of education throughout the Nation and the needs for well-educated personnel to staff such programs."

This report meets that requirement for Fiscal Year 1974-75. It contains projections of demand and supply of elementary and secondary public and nonpublic school teachers through academic year 1980-81. These projections are valid as of mid-1976. They offer guidance, very much needed in these days of a surplus of teachers, in evaluating future trends.

The report is intended to be useful to the Congress, to present and future teachers, to policy-makers at the local, State, and Federal levels, and to policy-makers and career counselors engaged in program and personnel planning at colleges and universities that prepare students for a career in teaching.

William F. Pierce
Acting U.S. Commissioner
of Education

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Chapter 1: INTRODUCTION AND SUMMARY

Background

A decline in the number of school-age youth has caused concern that the current oversupply of elementary and secondary teachers may continue. This concern is amplified by spiraling costs that limit the degree that pupil-teacher ratios can be lowered. An additional factor is that State and local boards of education indicate that the rate of teacher turnover--and therefore the number of openings for new teachers--appears to be slowing down as alternative employment opportunities decrease.

Objectives and Scope

This publication projects demand and supply of elementary and secondary public and nonpublic school teachers through 1980-81. In particular, the demand and supply of teachers through 1980-81 under alternative sets of assumptions (high, intermediate, and low rates of teacher turnover) is projected.

Following this introductory chapter, chapter 2 discusses the projection model that served as a framework in this effort. Chapter 3 presents the results and conclusions.

Approach

There are three basic sources of the demand for new teachers:

1) changes in student enrollment
2) changes in the ratio of teachers to pupils
3) teacher turnover (the number of currently employed teachers leaving the profession)

The two sources of teacher supply are:

1) beginning teachers; i.e., recent graduates eligible to teach for the first time
2) the reserve pool; i.e., persons qualified to teach but not currently teaching

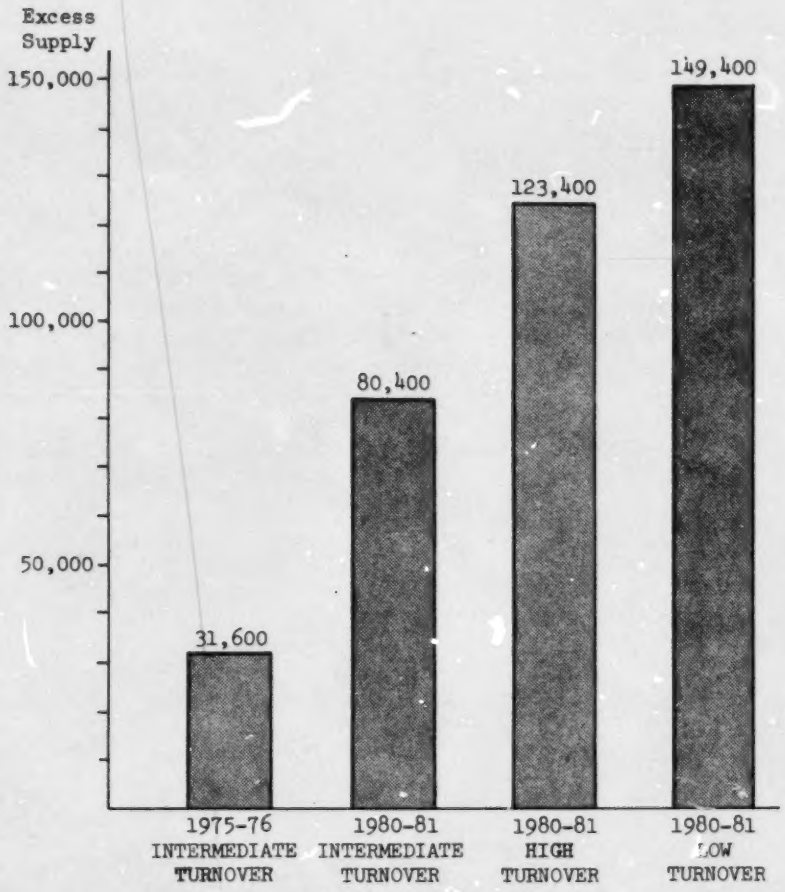
The reserve pool is an important source of teachers. Unfortunately, there isn't adequate data on this group. Consequently, figures for the reserve pool are not included in this analysis.

An important component of both teacher supply and demand is "continuing teachers," that is, persons continuing to teach from one year to the next. This factor does not affect calculations of supply and demand because the supply of continuing teachers is defined to exactly equal the demand for continuing teachers.

Findings

Projections of beginning teacher supply and new teacher demand were made under each of three assumptions. Excess teacher supply did not disappear under any of the assumptions for any year in the projection period. The projections for 1980-81 of the excess supply of beginning teachers relative to the demand for new teachers range from 80,400 (based on a high rate of teacher turnover) to 149,400 (based on a low rate of teacher turnover), with an intermediate projection of 123,400 (based on an intermediate rate of teacher turnover). These results are illustrated in the following chart:

Chart 1: Range of Excess Teacher Supply Projections



For comparison purposes, estimates of excess teachers for 1975-76 (intermediate turnover) are also shown on the above chart.

Note that even the lowest projected surplus in 1980-81 is about 70 percent greater than the 1975-76 surplus.

These projections of surplus teachers do not include the additional surplus from the reserve pool. Moreover, the excess supply of beginning teachers each year generates a larger and larger reserve pool.

Conclusions

The conclusions drawn from this effort are:

1) The teacher surplus is likely to continue through 1980-81. The competition for teaching positions is expected to grow.

2) More definitive projection and policy analyses require additional and more refined information. Additional information is needed on the reserve pool, the supply of beginning teachers, and teacher turnover.

Chapter 2: MODEL SPECIFICATION

Modeling Framework

The model for this effort has two components: (1) demand for new teachers and (2) supply of beginning teachers. The demand for new teachers is derived from three sources: Changes in student enrollments, changes in pupil-teacher ratios, and teacher turnover. The supply of new teachers is derived from one source: Beginning teachers--that is persons recently receiving a degree qualifying them to teach. (Note that the supply of teachers from the reserve pool is omitted because of lack of adequate data.)

The following sections present procedures used in projecting demand for new teachers and the supply of beginning teachers. In order to project supply and demand through 1980-81, it was necessary to project each of the component parts; e.g., teacher turnover, pupil-teacher ratios, degrees conferred, etc. For all but one of these components, a single estimate is simply continued through 1980-81. The exception is teacher turnover for which three alternative rates assumed. The primary reasons for utilizing alternative assumptions were to reflect the relative uncertainty and unpredictability of turnover and the lack of recent data.

Demand for Additional Teachers

Demand for additional teachers is derived by simply adding changes in demand resulting from three factors: Enrollment changes, pupil-teacher ratio changes, and teacher turnover.

National Center for Education Statistics (NCES) projections[1] of enrollment changes and pupil-teacher ratios are used in this report. Enrollment projections are based to a large extent on persons already born and are thus subject to relatively small uncertainty (primarily relating to different rates of public versus nonpublic school enrollment). Pupil-teacher ratio projections are based on the assumption that the trend from the previous decade will continue. Teacher turnover (teachers leaving the profession) was the variable for which three different rates were assumed (discussed at a later point).

Supply of Beginning Teachers

New teacher supply is the product of the number of college graduates in a given year, the percentage of graduates qualified to teach, and the percentage of these persons actually seeking teaching positions.

Projections of bachelor's degrees conferred (master's and first professional degree account for only a very small number of beginning teachers[2]) are based on NCES projections.

The rate of graduates eligible to teach-30%-is an average of yearly figures based on data collected by the National Education Association[3] (calculated by the Rand Corporation[2]).

1/ Projections of Educational Statistics to 1985-86. U.S. Department of Health, Education, and Welfare, Office of Education, Washington, D.C. In preparation.

2/ Analysis of the Educational Personnel System, Carroll, S. J. and Ryder, K. F., Rand Corporation, Washington, D.C. 1974.

3/ Research on Teacher Supply and Demand in Public Schools. National Education Association. Washington, D.C. Annual.

The rate of graduates eligible to teach who actually seek teaching positions is also based on data collected by the National Education Association. This rate-75%-was estimated by examining the percent of education graduates who actually entered teaching jobs during a period of teacher shortage; i.e., at a time when presumably all graduates who wanted to teach could get teaching jobs.

Alternative Values of Teacher Turnover

Three assumptions concerning the demand to fill slots created by teachers leaving the profession were specified for use in the projection model. Teacher turnover was varied to arrive at a plausible range of estimates within a reasonable number of cases. It should not be assumed that some of the other estimates are completely invariant. (For example, several alternative values for pupil-teacher ratios or for the rate of college graduates eligible to teach could have been assumed. On the other hand, estimates based on elementary/secondary school enrollment are reasonably firm because they are mostly based on numbers of persons already born.)

The three assumptions generate high, medium, and low projections of the demand for teachers to fill slots created by teacher turnover. The high projections are generated by assuming a teacher turnover rate of 8 percent of the teachers employed in each year. This figure was obtained from two separate studies of teacher turnover done in 1959-60 and 1968-69 (Mason and Bain, Metz and Fleischman[4/]).

4/ Mason, Ward S., and Robert K. Bain. Teacher Turnover in the Public Schools 1957-58. U.S. Department of Health, Education, and Welfare, Office of Education Circular 608. Washington, D.C.: U.S. Government Printing Office. 1959.

Metz, A. Stafford, and Howard L. Fleischman. Teacher Turnover in Public Schools Fall 1968 to Fall 1969. U.S. Department of Health, Education, and Welfare, Office of Education. Washington, D.C.: U.S. Government Printing Office. 1974.

The medium projections are generated by assuming a 6 percent rate of teacher turnover, a rate recommended by Froomkin[5/] as being appropriate for the 1970's. Froomkin bases this estimate on the following premises:

1) An anticipated slowdown in the rate of professional job growth outside the education sector;
2) Continuations of the trend toward smaller families so that fewer teachers are likely to leave the profession for family reasons, particularly for pregnancy-related leaves of absence;
3) Fewer leaves of absence being requested for additional education in order not to risk job security;
4) Fewer age-related retirement, since average age of the employed teacher has been declining recently. School systems are hiring relatively more beginning teachers, who are typically less expensive and more likely to be trained for educating students with various disabilities.

The low projections are generated by applying average annual separation rates to NCES projections of teacher employment in each projection year. Collectively, they represent a teacher turnover rate of approximately 4.8 percent. These rates were estimated from 1970 and 1985 separation rates prepared for elementary and secondary school teachers by the U.S. Bureau of Labor Statistics (Tomorrow's Manpower Needs, Volume IV, 1974). The BLS rates are computed from the 1970 age distribution of teachers at each level and of each sex, as reported in the 1970 Census of Population. They represent attrition from employment for reasons associated with age--including death, retirement, and child bearing and/or child rearing; an additional factor was turnover to fill vacant administrative positions. Teacher turnover based on these separation

5/ Demand and Supply of Elementary and Secondary Teachers, 1980. Joseph Froomkin, Inc., Washington, D.C. 1974.

rates is likely to be biased downward, since teachers terminate employment for reasons other than just those related to age or demand to fill vacant administrative positions. An appropriate interpretation of these teacher turnover projections is that they constitute a floor on future demand for new teachers.

Projections of teacher demand to fill slots created by teacher turnover are presented in table 1, based on the above three assumptions.

Table 1. Additions to public and nonpublic school new teacher demand resulting from alternative teacher turnover assumptions (in thousands)

Year	High (8%)	Medium (6%)	Low (4.8%)
1975	183	140	114
1976	186	142	116
1977	188	143	117
1978	187	142	116
1979	185	141	115
1980	183	140	114

Chapter 3: RESULTS AND CONCLUSIONS

Results

For each of the assumptions, a continuation of the teacher surplus is projected for each year through 1980-81. The projections of beginning teacher excess supply range from 80,400 to 149,400 in 1980-81. Results for each assumption considered are presented in tables 2-4.

Conclusions

1) The teacher surplus is likely to continue. The smallest surplus in 1980-81 of beginning teachers in relation to demand is projected to be approximately 50 percent. Additional supplies from the reserve pool increase the size of this surplus. Thus, even if the assumptions leading to the lowest projections of teacher supply materialize, there will be about half as many more persons available as openings. It must be recognized that projections by subject, field, level, or geographic area are not feasible at this time and that the supply/demand ratio will vary within these categories.

2) Additional information on the reserve pool, teacher turnover, and production of beginning teachers is needed to refine projections of teacher supply and demand.

Table 2.--Demand for additional teachers relative to beginning teacher supply: United States, 1970-71--1980-81

(Case 1: High teacher turnover)

Year	Demand	Supply	Excess Supply	Supply Demand Ratio
1970-71	215,000	188,939	-26,061	0.88
1971-72	190,000	199,636	9,636	1.05
1972-73	226,000	207,479	-18,521	.92
1973-74	219,000	212,821	- 6,179	.97
1974-75	208,000	212,400	4,400	1.02
		Projected		
1975-76	222,000	210,600	- 11,400	.95
1976-77	198,000	214,200	16,200	1.08
1977-78	181,000	227,475	46,475	1.26
1978-79	169,000	233,550	64,550	1.38
1979-80	164,000	236,700	72,700	1.44
1980-81	159,000	239,400	80,400	1.51

Table 3.--Demand for additional teachers relative to beginning teacher supply: United States, 1970-71--1980-81

(Case 2: Medium teacher turnover)

Year	Demand	Supply	Excess Supply	Supply Demand Ratio
1970-71	134,000	188,939	54,939	1.41
1971-72	149,000	199,636	50,636	1.34
1972-73	185,000	207,479	22,479	1.12
1973-74	177,000	212,821	35,821	1.20
1974-75	165,000	212,400	47,400	1.29
		Projected		
1975-76	179,000	210,600	31,600	1.18
1976-77	154,000	214,200	60,200	1.39
1977-78	136,000	227,475	91,475	1.67
1978-79	124,000	233,550	109,550	1.88
1979-80	120,000	236,700	116,700	1.97
1980-81	116,000	239,400	123,400	2.06

Table 4. Demand for additional teachers relative to beginning teacher supply: United States, 1970-71--1980-81

(Case 3: Low teacher turnover)

Year	Demand	Supply	Excess Supply	Supply Demand Ratic
1970-71	110,000	188,939	78,939	1.72
1971-72	125,000	199,636	74,636	1.60
1972-73	160,000	207,479	47,479	1.30
1973-74	152,000	212,821	60,821	1.40
1974-75	140,000	212,400	72,400	1.52
		Projected		
1975-76	153,000	210,600	57,600	1.38
1976-77	128,000	214,200	86,200	1.67
1977-78	110,000	227,475	117,475	2.07
1978-79	98,000	233,550	135,550	2.38
1979-80	94,000	236,700	142,700	2.52
1980-81	90,000	239,400	149,400	2.66